

REMARKS

This Request for Reconsideration is submitted in response to the Office Action of January 25, 2007 (hereinafter "the Office Action"). Claims 8, 19, and 21-23 remain pending.

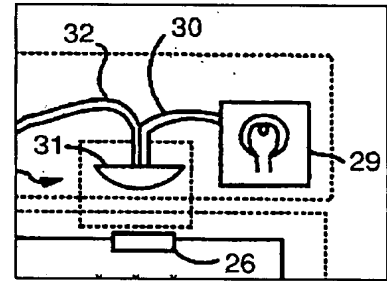
All references to the claims, except as noted, will be made with reference to the claim list above beginning on page 2. Line numbers cited in the Office Action, except as noted, will count every printed line except the page header, but including section headings. If there is any confusion or questions regarding any aspect of this Request for Reconsideration, the Examiner is kindly invited to contact the undersigned.

Claim Rejections

Claims 8, 19, and 22 stand rejected under either 35 U.S.C. § 102(e) or 35 U.S.C. § 103(a) for being anticipated by or obvious over, respectively, U.S. Patent 5,658,418 issued to Coronel et al. ("Coronel"). For anticipation under 35 U.S.C. § 102(e), each and every feature set forth in the claim must be present in a single prior art reference (MPEP 2131). For obviousness under 35 U.S.C. § 103(a), each and every feature must be taught or suggested by the prior art reference, or references when combined or modified (MPEP 2143). It should therefore be noted that Applicant need only point out a single feature in each claim that is not disclosed, taught, or suggested by Coronel to overcome this rejection. The following discussion therefore should not be construed as an exhaustive listing of every distinguishing feature set forth in the claims.

Independent claim 8 sets forth a lens system having an optical fiber aperture for receiving optical fibers (line 5), a light source optical fiber bundle (line 6), and a detection fiber bundle comprising a plurality of detector fibers (line 11), the detector fibers being interleaved with fibers from the light source optical fiber bundle at the optical fiber aperture of the lens system (lines 13-15), the lens system being configured to collimate light exiting the light source optical fiber bundle, and project the light onto a spot on the surface of the wafer (lines 8-10). Independent claim 19 includes similar features. By using a collimating light source to project light from an optical fiber bundle having light source optical fibers and detector optical fibers interleaved with each other, each detector optical fiber receives reflected light from only a small portion of the spot generated by the lens system, thus each detector fiber receives reflected light from a different discrete location on the wafer and can be analyzed independently or together with other light from other detector fibers.

In contrast, and in reference to Figure 3 of Coronel, a portion of which is reproduced to the right, Coronel has an optic cable 30 extending from a light source 29 to a collector lens 31, and a separate optic cable 32 extending from collector lens 31 to a pair of sensors 33a, 33b (see Figure 3). Coronel does not mention or suggest that optical fibers from optic cable 30 are interleaved with optic fibers of optic cable 32, and Figure 3 in fact shows them as being separate and distinct up to lens 31.



In response to the above argument, presented previously in the Amendment filed November 13, 2006, the Office Action states, “on further consideration it is disclosed that in fact the two are assembled in a single bundle of fibers” (Office Action, page 4, last two lines). Applicant agrees that bundles 32 and 30 may be “bundled” where “bundle” is defined as, “a group of things fastened together for convenient handling.”¹ However, this does not suggest that the detector fibers are “interleaved” with the light source fibers as presently claimed.

In addition, the Office Action states that Coronel shows that a “light fiber bundle and detector fiber bundle are made in a single bundle with fibers assembled together randomly (Col 8 lines 28-36)” (Office Action, page 2, lines 23-24). Thus, the Office Action appears to suggest that the detector and light fibers of Coronel are interleaved. On this point, Applicant respectfully disagrees.

The indicated portion of the Office Action is reproduced below:

optical cable 30. The elementary optical fibers forming
30 optical cables 30 and 32 are arranged to display the same
optical axis perpendicular to the wafer 24. In a particular
implementation, they are assembled close together and ran-
domly to form a single bundle of fibers. Optical cables 30
and 32 are constructed from fibers forming the bundle, as is
35 the case for optical cables 32A and 32B that form optical
cable 32. However, a set of three different optical cables 30,

At lines 32-33, the specification states that “they are assembled close together and randomly to form a single bundle of fibers.” The question is whether the pronoun “they” refers to the fibers of both detector cable 32 and illumination optical cable 30 (see inset above from Figure 3) or the fibers of one of the two optical cables, and whether the “single bundle of fibers” refers to a combined bundle containing the fibers from both cables or a bundle

containing the fibers of one of the cables. It appears that the Office Action takes the position that the fibers from both optical cables 30, 32 are arranged into a single bundle at random. However, the next sentence from portion of Coronel reproduced above states, "Optical cables 30 and 32 are constructed from fibers forming the bundle." Since each cable 30, 32, is therefore formed from "the bundle," the "bundle" referenced in the preceding sentence must refer to a bundle that forms *only one* of the cables 30, 32. There is therefore no suggestion that fibers from both cables 30, 32 are randomly combined in a single bundle. Applicant therefore respectfully submits that fibers from Coronel's cables are not combined into a single bundle, but are kept separate as shown in Coronel's Figure 3.

To the extent that the Office Action may be suggesting that "interleaved" is inherent to Coronel, Applicant recognizes that express, implicit, and *inherent* disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. §§ 102 and 103. However, the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. See MPEP 2112 IV. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is *necessarily present* in the thing described in the reference, and that it would be so recognized by persons of ordinary skill' (*In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981) (emphasis added)).

For the reasons stated above, Applicant respectfully submits that Coronel does not describe, teach, or suggest interleaving detector fibers with fibers from the light source optical fiber bundle at the aperture of the lens system.

Since the optic cables of Coronel are not interleaved, and they receive light from optic cable 30 after the light is reflected from the wafer, the light reflected from wafer 24 (Figure 3) must be received over a large region. Therefore, the system described in Coronel is not capable of providing a distinct optical signal derived from reflected light received by each fiber of optic cable 32. Since Coronel therefore does not show each and every feature set forth in the claim 8, Applicant respectfully submits that claim 8, 19, and 22 are not anticipated by Coronel or obvious in view of Coronel and should therefore be allowed.

Claims 19, 21, and 23 stand rejected for being obvious over Coronel in view of U.S. Patent Application Publication 2003/0201162 issued to Liu et al. ("Liu"). Liu is cited for

¹ *Merriam-Webster's Online Dictionary*, where the verb "to bundle" means "to make into a bundle" and the noun "bundle" is defined as stated.

showing a plasma processing apparatus capable of determining an end point using optical emission spectroscopy (Office Action, page 4, line 8). However, Applicant respectfully submits that Liu fails to overcome the deficiencies of Coronel. Liu does not disclose a light source and light source optic cable. Instead, Liu is directed to a system for receiving light generated directly by the plasma in the etch chamber. See, e.g., the first sentence of paragraph 40.

Since the cited prior art fails to teach or suggest each and every feature set forth in the claims, Applicant respectfully submits that claims 19, 21, and 23 are patentable under 35 U.S.C. § 103(a) and should therefore be allowed.

Since, for the reasons mentioned above, none of the prior art references of record describe or suggest the features now set forth in the claims, Applicants respectfully submit that the present application is in condition for allowance. A Notice of Allowance is therefore respectfully requested.

If the Examiner has any questions concerning the present Request for Reconsideration, the Examiner is kindly requested to contact the undersigned at (408) 774-6933. If any other fees are due in connection with filing this Request for Reconsideration, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (LAM2P426). A duplicate copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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